

# **Health Consultation**

State of Tennessee DCERP Site #79-212

DOWNTOWN SCHOOL MEMPHIS CITY SCHOOLS – UPDATE #2

MEMPHIS, SHELBY COUNTY, TENNESSEE

FEBRUARY 27, 2004

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES  
Public Health Service  
Agency for Toxic Substances and Disease Registry  
Division of Health Assessment and Consultation  
Atlanta, Georgia 30333

## **Health Consultation: A Note of Explanation**

An ATSDR health consultation is a verbal or written response from ATSDR to a specific request for information about health risks related to a specific site, a chemical release, or the presence of hazardous material. In order to prevent or mitigate exposures, a consultation may lead to specific actions, such as restricting use of or replacing water supplies; intensifying environmental sampling; restricting site access; or removing the contaminated material.

In addition, consultations may recommend additional public health actions, such as conducting health surveillance activities to evaluate exposure or trends in adverse health outcomes; conducting biological indicators of exposure studies to assess exposure; and providing health education for health care providers and community members. This concludes the health consultation process for this site, unless additional information is obtained by ATSDR which, in the Agency's opinion, indicates a need to revise or append the conclusions previously issued.

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HEALTH CONSULTATION

State of Tennessee DCERP Site #79-212

DOWNTOWN SCHOOL MEMPHIS CITY SCHOOLS – UPDATE #2

MEMPHIS, SHELBY COUNTY, TENNESSEE

Prepared by:

Tennessee Department of Health  
Under a Cooperative Agreement with the  
Agency for Toxic Substances and Disease Registry

*Preface: The following document was prepared to update the environmental public health discussion presented in two health consultations for DCERP Site #79-212, Downtown School Memphis City Schools, dated January 2 and March 13, 2003, by the ATSDR.*

## **BACKGROUND AND STATEMENT OF ISSUES**

In December 2003, Tennessee Department of Environment and Conservation (TDEC), Drycleaner Environmental Response Program (DCERP), requested Tennessee Department of Health (TDH), Communicable and Environmental Disease Services (CEDs), Environmental Epidemiology (EEP), assist with a one-year health checkup of the Downtown School. The school is located at 10 North Fourth Street, Memphis, Shelby County, Tennessee, 38103. Downtown School was built over a site operated for decades as a laundry and drycleaner. Although no health risks were discovered in two prior health investigations, school officials appealed to DCERP for reassurance. DCERP and EEP decided that additional indoor air sampling was justified as elementary school children are a sensitive population.

This report focuses on indoor air samples collected during the school's 2003 Winter Break. Drycleaner solvents including tetrachloroethylene (PCE) and its breakdown products, such as trichloroethylene (TCE) and dichloroethene (DCE), were the chemicals of concern. These chemicals have the potential to evaporate from soils or groundwater under the school and become trapped within the building. The route of exposure would be the inhalation of chemical vapors trapped within breathable indoor air.

Some engineering controls are currently being used to minimize any potential vapor intrusion. DCERP site #79-212 has a groundwater remediation system in operation. In addition, Downtown School has a properly functioning HVAC system.

On December 22, 2003, Pickering Environmental Consultants, Inc., under the authorization of the DCERP, performed vapor monitoring in Downtown School. Indoor air samples were collected using SUMMA canisters at four locations (PECI 2004).

## DISCUSSION

### Environmental Sampling

The December 22, 2003, indoor air sampling using four SUMMA canisters detected no chemicals of concern. The sampling was performed during the school's winter break to minimize air mixing caused by school activities and the use of doors or windows. Table 1 displays the results of the lab analysis of the four SUMMA canisters.

**TABLE 1.** Analytical results of indoor air vapor samples collected December 22, 2003, at Downtown School, Memphis City Schools, Memphis, Shelby County, Tennessee. All four samples were collected with SUMMA canisters and analyzed in accordance with Method TO-15. All drycleaner solvent vapor and breakdown products vapor test results were below analytical detection limits (PECI 2004).

	Early Childhood Room 1085	hallway outside of Media Center groundfloor	near stage Multi-purpose Room	air intake unit nearest remediation system	Health Comparison Value (ppb)	Detection Limit for chemical analyzed (ppb)
1,1-Dichloroethane	Not Detected	Not Detected	Not Detected	Not Detected	Does not exist	0.224
1,1-Dichloroethene	Not Detected	Not Detected	Not Detected	Not Detected	20	0.142
trans-1,2-Dichloroethene	Not Detected	Not Detected	Not Detected	Not Detected	200	0.163
Trichloroethene	Not Detected	Not Detected	Not Detected	Not Detected	100	0.175
1,2-Dichloroethane	Not Detected	Not Detected	Not Detected	Not Detected	600	0.185
cis-1,2-Dichloroethene	Not Detected	Not Detected	Not Detected	Not Detected	Does not exist	0.221
Tetrachloroethene	Not Detected	Not Detected	Not Detected	Not Detected	40	0.163
Vinyl Chloride	Not Detected	Not Detected	Not Detected	Not Detected	30	0.207

### **Child Health Considerations**

The many physical differences between children and adults demands special emphasis. Children could be at greater risk than adults from certain kinds of exposure to hazardous substances. Children six years old or younger may be more sensitive to the effects of pollutants than adults. Children generally have lower body weights, breathe air closer to the ground, and are more often in contact with the ground than adults. If toxic exposure levels are high enough during critical growth stages, the developing body systems of children can sustain permanent damage. In addition, children are dependent on adults for access to housing, for access to medical care, and for risk identification. Thus, parents and guardians need as much information as possible to make informed decisions regarding their children's health. TDH used the potential exposure of elementary school children to drycleaner solvent vapors inside the Downtown School to assess health risk in this environmental public health document.

### **CONCLUSIONS**

At the request of school officials, the indoor air quality at Downtown School, Memphis City Schools, Memphis, Shelby County, Tennessee, was evaluated. The environmental sampling detected no drycleaner solvent vapors or breakdown product vapors. No public health hazard exists at Downtown School a/k/a DCERP Site #79-212.

### **RECOMMENDATIONS**

None at this time.

### **PUBLIC HEALTH ACTION PLAN**

TDH will provide copies of this health document to Memphis City Schools, Memphis-Shelby County Health Department, interested community members, and the appropriate government agencies. TDH will be available to the DCERP if future environmental health questions arise at Downtown School.

## **REFERENCES**

ATSDR [Agency for Toxic Substances and Disease Registry]. 2003. Health Consultation: Downtown School Memphis City Schools (a/k/a State of Tennessee DCERP site #79-212) Memphis, Shelby County, Tennessee. Atlanta: US Department of Health and Human Services.

ATSDR [Agency for Toxic Substances and Disease Registry]. 2003. Health Consultation: Downtown School Memphis City Schools – Update (a/k/a State of Tennessee DCERP site #79-212) Memphis, Shelby County, Tennessee. Atlanta: US Department of Health and Human Services.

PECI. [Pickering Environmental Consultants, Inc.]. 2004. Report on vapor monitoring December 2003 sampling event of DCERP site #79-212, Memphis City School's Downtown School, 10 North Fourth Street, Memphis, Tennessee, Project #15117.04 Task 24. Memphis: Pickering Environmental Consultants, Inc.

## **PREPARERS OF REPORT**

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## CERTIFICATION

This *Health Consultation: Downtown School Memphis City Schools – Update #2 (a/k/a State of Tennessee DCERP Site #79-212)* was prepared by the Tennessee Department of Health under a cooperative agreement with the Agency for Toxic Substances and Disease Registry (ATSDR). It was prepared in accordance with approved methodology and procedures that existed at the time the health consultation was begun.

*James K. Carpenter*

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*for* Technical Project Officer, CAT, SSAB, DHAC, ATSDR

The Division of Health Assessment and Consultation, ATSDR, has reviewed this public health consultation and concurs with the findings.

Richard Gillig

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